Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – III • EXAMINATION – SUMMER • 2013

Subject code: 733102 **Date: 15-05-2013**

Subject Name: Cardiovascular Mechanics

Time: 10.30 am – 01.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain heart sounds in detail.	**07**
	(b)	Describe mathematical model of mitral valve in terms of characteristics equations, frequency response and time response plots.	**07**
Q.2	**(a)**	Write short notes on fluid viscosity and pipe flow.	**07**
	(b)	Explain structure and function of Aortic valve.	**07**
		OR	
	(b)	Write a short note on heart valve diseases.	**07**
Q.3	**(a)**	Define non-Newtonian fluid & describe power constitutive model that exhibits blood characteristics.	**07**
	(b)	Write a short note on cardiac cycle.	**07**
		OR	
Q.3	**(a)**	Explain Poiseuille's law for the flow rate measurement of a Newtonian fluid in a rigid, cylindrical tube.	**07**
	(b)	Write a short note on blood plasma.	**07**
Q.4	**(a)**	Write short notes on stenosis, Aneurysm and Thrombosis.	**07**
	(b)	Write short notes on Leukocytes and Monocytes.	**07**
		OR	
Q.4	**(a)**	Explain structure of heart in detail with neat diagram.	**07**
	(b)	Explain types of arteries in detail.	**07**
Q.5	**(a)**	Write short notes on cardiac muscles and myocardial diseases.	**07**
	(b)	Explain the modeling of pulsatile flow in rigid tubes with Wormersley Solution.	**07**
		OR	
Q.5	**(a)**	Write a shot note on pressure in the heart.	**07**
	(b)	Explain the modeling of pulsatile flow in rigid tubes with Fry Solution.	**07**

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